

Application No. 10/023,641

- 4 -

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A method of ~~reassembling~~ transmitting packets from a plurality of traffic flows ~~in~~ through a network element, ~~each of said packets the network element having at least one data part an egress card~~, said method comprising the steps of:

(1) ~~queuing segmenting~~ each of said packets into at least one data part of said packets of said plurality of traffic flows ~~in a single reassembly queue in a sorted order, said the each packet and~~ at least one data part of said ~~each of said packets being continuously grouped without data parts of other of said packets being interleaved therein; and both being associated with a destination address;~~

(2) ~~reassembling transmitting~~ said at least one data part of said ~~each of said packets queued in said single reassembly queue~~ through the network element to the egress card in a packet-ordered stream; and

(3) ~~queuing~~ said at least one data part received at the egress card to a reassembly queue in a plurality of reassembly queues of said egress card to reassemble said each packet in the reassembly queue, wherein each reassembly queue corresponds to a respective destination address associated with one or more of the packets and said reassembly queue is associated with said destination address.

Claim 2. (Currently Amended) A method of ~~reassembling~~ transmitting packets as claimed in claim 1, ~~said method further comprising:~~ (0.1) an initial step of transmitting wherein said at least one data part of each said packet from one of said plurality of data flows are transmitted to the egress card in sequential order without any other data part from another of said packets from another of said plurality of traffic flows interleaved therebetween, said packets to an egress card of said network element in a packet-ordered stream, said at least one data part of said each of said packets being continuously grouped without interleaved data

123081-339665

McCarthy Tétrault LLP TDO-RED #8310705 v. 1

- 5 -

~~parts of thereof said packets and wherein said steps (1) and (2) are performed at said egress card.~~

Claim 3. (Currently Amended) A method of ~~reassembling~~ transmitting packets as claimed in claim 2, wherein ~~[[:]]~~ said plurality of traffic flows transmit frames to said network element; and

~~— said step 0.1 further includes substeps:~~

~~(0.1a) queuing said frames of said each of said plurality of traffic flows prior to said transmitting said each of said at least one data part to said egress card; and (0.1b) segmenting said frames in said plurality of traffic flows into said at least one data part of said packets after said queuing said frames.~~

Claim 4. (Currently Amended) A method of ~~reassembling~~ transmitting packets as claimed in claim 3, wherein:

said network element includes an ingress card; and

said ~~substeps (0.1a) and (0.1b)~~ are step (1) is performed by said ingress card.

Claim 5. (Currently Amended) A method of ~~reassembling~~ transmitting packets as claimed in claim 4, wherein each traffic flow of said plurality of traffic flows has a weight and said each traffic flow receives bandwidth on said packet ordered stream based on said weight of said each traffic flow.

Claim 6. (Currently Amended) A method of ~~reassembling~~ transmitting packets as claimed in claim 4, wherein each traffic flow of said plurality of traffic flows is associated with a class of traffic flow, said class indicating a priority for said traffic flow.

Claim 7. (Currently Amended) A network element providing datapath connectivity for a plurality of traffic flows, ~~said network element transmitting cells within said network~~

element, each of said plurality of traffic flows transmitting variable-length packets [[10]] through said network element, said network element comprising:

an ingress card having a segmentation module adapted to segment said for segmenting each variable-length packets packet of each of said plurality of traffic flows into at least one cell, said each packet and said at least one cell being associated with a destination address, and said ingress card transmitting said cells formed from each of said variable-length packets in a at least one cell in a packet ordered stream grouped together in a sorted order; and

an egress card receiving said cells ~~transmitted in said packet ordered stream~~, said egress card having [[:]] an egress queuing module adapted to queue said cells of said variable-length packets of said plurality of traffic flows into a single reassembly queue; and a reassembly module adapted to reassemble said cells queued in said single reassembly queue into variable-length packets for queuing each received cell at said egress card into a reassembly queue in a plurality of reassembly queues, wherein each reassembly queue corresponds to a respective destination address associated with one or more of the packets and said reassembly queue is associated with said destination address.

Claim 8. (Currently Amended) A network element providing datapath connectivity for a plurality of traffic flows as claimed in claim [[7]] 11, wherein said ingress card further has an ingress queuing module ~~adapted to queue~~ for queuing said variable-length packets of each of said plurality of traffic flows into ~~queues~~ a separate queue at said ingress card of said network element.

Claim 9. (Original) A network element providing datapath connectivity for a plurality of traffic flows as claimed in claim 8, wherein each traffic flow of said plurality of traffic flows has a weight and said each traffic flow receives bandwidth on said packet ordered stream based on said weight of said each traffic flow.

Claim 10. (Original) A network element providing datapath connectivity for a plurality of traffic flows as claimed in claim 9, wherein each traffic flow of said plurality of

- 7 -

traffic flows is associated with a class of traffic flow, said class indicating a priority for said traffic flow.

Claim 11. (Cancelled)

Claim 12. (New) A network element providing datapath for a plurality of traffic flows as claimed in claim 8, wherein said at least one cell of each said packet from one of said plurality of traffic flows are transmitted from said ingress card in sequential order without any cell from another of said packet from another of said plurality of traffic flows interleaved therebetween.

Claim 13. (New) A method of transmitting variable length packets through a network element having a plurality of ingress cards, a plurality of egress cards and a cell-based switch fabric, the method comprising:

a) segmenting at one of said plurality of ingress cards each incoming packet received in a plurality of ingress traffic flows into fixed length cells and ordering the cells in sequential packet order, said each incoming packet and said fixed length cells being associated with a destination address;

b) transmitting each of said packet-ordered fixed length cell into a plurality of packet-ordered streams to one of said plurality of egress cards according to the destination address of the each packet, said plurality of packet-ordered streams transmitting cells simultaneously over the network element towards the one egress card;

c) assigning said each cell in one of said respective packet-ordered streams to a reassembly queue in a plurality of reassembly queues at said one egress card according to the destination address, and reassembling the each cell in the reassembly queue into the each incoming packets; and

d) transmitting the reassembled packets in an egress traffic flow from the network element towards the destination address,

wherein each reassembly queue can accept cells from more than one ingress traffic flow of said plurality of ingress traffic flows.

Claim 14. (New) The method of claim 13, wherein the plurality of ingress traffic flows carry data formatted according to one or more communication protocols.

Claim 15. (New) The method of claim 14, wherein said protocols are one or more of ATM, MPLS, and IP protocols.

Claim 16. (New) The method of claim 13, wherein the each cell is switched to one of said plurality of packet ordered streams based on a class of service associated with the ingress traffic flow from which the network element received the incoming packet associated with the each cell.

Claim 17. (New) The method of claim 16, wherein step c) further comprises providing associating one of said plurality of reassembly queues to each class of service associated with the plurality of ingress traffic flows.

Claim 18. (New) The method of claim 16, wherein the class of service indicates a high, medium and low traffic priority.

Claim 19. (New) The method of claim 13, further comprising weighting packets from each ingress traffic flow for switching each packet-ordered cell of the packets into a respective one of the plurality of packet-ordered streams, wherein each of said plurality of packet-ordered streams is associated with a traffic flow priority.

Claim 20. (New) A network element having a cell-based switch fabric for switching variable-lengths packets, comprising:

a segmenting module for segmenting each incoming packet received from a plurality of ingress flows into fixed length cells;

an ordering module for ordering the cells from the segmenting module in sequential packet order;

a switching module for switching each packet-ordered cell into one of a plurality of packet-ordered streams according to a destination address associated with the each packet,

- 9 -

said plurality of packet-ordered streams transmitting cells simultaneously over the network element;

a reassembly queue associated with the destination address for reassembling cells associated with the destination address into the each packet, and transmitting the each reassembled packet in an egress flow towards the destination address; and

an assignment module for assigning each cell to the reassembly queue among a plurality of reassembly queues according to the destination address associated with the each packet, each reassembly queue being associated with a different destination address,

wherein each reassembly queue can accept cells from more than one ingress flow of said plurality of ingress flows.

Claim 21. (New) The network element of claim 20, wherein the segmenting module and the ordering module are provided on an ingress card of the network element.

Claim 22. (New) The network element of claim 20, wherein the plurality of reassembly queues and the assignment module are provided on an egress card of the network element.

Claim 23. (New) The network element of claim 20, wherein the plurality of reassembly queues are implemented using a FPGA.

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